

REMARKS

I. Introduction

Claims 19 to 48 are pending in the present application. Claims 19, 33, 38 and 45 has been amended, without prejudice, and no new matter has been added. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable and reconsideration is respectfully requested.

**II. Rejection of Claims 19 to 38, 40 to 46, and 48 Under
35 U.S.C. § 112, Second Paragraph**

Claims 19 to 38, 40 to 46, and 48 were rejected under 35 U.S.C. § 112, second paragraph as purportedly indefinite. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

Claim 19, from which claims 20 to 32, 36, and 37 depend has been amended, without prejudice, to recite, "converting the gaseous, organic, bake-out product *into relatively less combustible compounds*," therefore the claim specifies to what the product is converted. Claims 34 and 35 depend from claim 33, claims 40 to 44 depend from claim 38, and claims 46 and 48 depend from claim 45. Claims 33, 38 and 45 have also been amended, without prejudice, to recite, "converting the gaseous hydrocarbons *into relatively less combustible compounds*." Support for these amendments may be found in the Specification of the current Application, for example, at page 2, lines 24 to 34, and page 6, lines 28 to 37.

The Office Action states that, "Applicant has not pointed out support for the term 'steeping', " which is recited in claim 42. In this regard, it is noted that support for the use of the term steeping may be found in the Specification, for example, at page 8, lines 5 to 20. Here, the Specification states:

To ensure a homogenous and very fine distribution of the catalytically active substance in setter plates 20, 21 and separating layers 30, 31, respectively, or in the corresponding surfaces, they are preferably ***steeped in an aqueous metallic-salt solution*** ...

Accordingly, it is respectfully submitted that there is support in the Specification for all of the above amendments and that all of the claims comply with the patentability requirements of 35 U.S.C. § 112, second paragraph. For at least the foregoing reasons, it is respectfully requested that this rejection of claims 19 to 38, 40 to 46 and 48 be withdrawn.

III. Rejection of Claims 19 to 24, 33 to 42, 45 and 47 Under 35 U.S.C. § 103(a)

Claims 19 to 24, 33 to 42, 45 and 47 were rejected under 35 U.S.C. § 103(a) as anticipated by United States Patent No. 4,971,731 ("Herron et al."). Applicants respectfully submit that this rejection should be withdrawn for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 19 is a method claim which recites the following:

... introducing a catalytically active substance into at least one of (i) pores of at least one of the porous setter plates and (ii) pores of at least one porous separating layer of the porous setter plates, the catalytically active substance converting the gaseous, organic, bake-out product into relatively less combustible compounds.

Claims 20 to 24, 36 and 37 depend from claim 19. Claims 34 and 35

depend from claim 33, which is directed to a device and recites similar subject matter. Claims 39 to 42 depend from claim 38, which is directed to a method and recites similar subject matter. Claim 47 depends from claim 45, which is directed to a method and recites similar subject matter.

As regards the "catalytically active substance," the Examiner apparently relies on the reducible metal oxide (e.g., Cu₂O or CuO) described in the Herron et al. reference. Respectfully, the reducible metal oxide described in the Herron et al. reference does not convert a gaseous **organic** bake-out product, as recited in the claims of the present application. As described in the Herron et al., the Cu₂O or CuO reacts with **hydrogen**. In particular, the Herron et al. reference describes that the Cu₂O or CuO is used to maintain an "ideal" H₂/H₂O ratio directly at the surface of the substrate. See, e.g., Herron et al. reference, col. 5, lines 40-52. In contrast an **organic** bake-out product would be composed of more than just pure hydrogen. Thus, the Herron et al. reference does not disclose, or even suggest, converting a gaseous **organic** bake-out product.

Moreover, the Herron et al. reference also does not disclose, or even suggest, **introducing** a catalytically active substance **into at least one of pores** of at least one of the porous setter plates and pores of at least one of the porous separating layers of the porous setter plates as in the present claims. The Office Action states that, "it is clearly unreasonable to conclude that the catalyst is not contained in the pores of the setters," simply because the setters are porous and the setters include copper oxide. However, according to Herron et al. the copper oxide is distributed throughout the setter tile and the setter tile is subsequently, "partially sintered, thereby ensuring a porous body." Pores are, by their nature, empty voids upon formation, therefore, Herron et al. appears to describe forming empty pores in a material containing the copper oxide. Figure 5 of Herron et al. illustrates an embodiment of a setter tile including "refractory oxide 230 having the reducible metal oxide 232 dispersed therein." Col. 7, lines 34-38. Figure 5 depicts these features, showing that reducible metal oxide 232 is not necessarily within the pores, which are labeled 234. Col. 5, line 38. In contrast, the present claims recite, "**introducing** a catalytically active substance **into** at

least one of (i) **pores** of at least one of the porous setter plates and (ii) **pores** of at least one porous separating layer of the porous setter plates." The Specification of the present application provides that, using porous setter places and/or porous separating layers, the catalytically active substance may be introduced into the actual pores themselves, "by dipping...or by spraying in particular the side of the porous plates facing the ceramic green body," for example.

Therefore, the Herron et al. reference does not disclose, or even suggest, the step of *introducing* a catalytically active substance *into at least one of pores* of at least one of the porous setter plates and **pores** of at least one of the porous separating layers of the porous setter plates, as in the present claims.

It is respectfully submitted that claim 19, as well as claims 20 to 24, 36 and 37, which depend from claim 19 and therefore include all of the features of claim 19, are patentable over Herron et al. for at least the above reasons.

Furthermore, regarding claims 33, 38, and 45, as well as the claims that depend from them, claims 33, 38, and 45 further recite, "converting the gaseous **hydrocarbons** into relatively less combustible compounds." Respectfully, the reducible metal oxide described in the Herron et al. reference does not convert gaseous **hydrocarbons**, as recited in the claims of the present application. As described in the Herron et al., the Cu₂O or CuO reacts with **hydrogen**. In particular, the Herron et al. reference describes that the Cu₂O or CuO is used to maintain an "ideal" H₂/H₂O ratio directly at the surface of the substrate. See, e.g., Herron et al. reference, col. 5, lines 40-52. Thus, the Herron et al. reference does not describe (or suggest) converting gaseous **hydrocarbons**.

The features of the pending claims are not obvious over the Herron et al. reference; in fact, the Herron et al. reference addresses a different problem than that addressed by the present invention. In particular, the Herron et al. reference appears to address the consumption of excess hydrogen and generation of more steam. According to the Herron et al reference, an "ideal" H₂/H₂O ratio is maintained directly at the surface of the substrate.

The present invention, however, converts escaping bake-out products

into, e.g., less combustible or incombustible gases. For example, escaping gaseous high molecular weight hydro-carbons are converted to lower molecular weight hydro-carbons using a catalytically active substance, for example, sprayed onto a porous setter plate or separating layer.

For the foregoing reasons, it is respectfully submitted that claims 19, 33, 38, and 45 are allowable over Herron et al. As for claims 20-24, 36 and 37, which depend from claim 19 and therefore include all of the features of claim 19, as well as claims 34 and 35, which depend from claim 33 and therefore include all of the features of claim 33, claims 39 to 42, which depend from claim 38 and therefore include all of the features of claim 38, and claim 47 which depends from claim 45 and therefore includes all of the features of claim 45, it is respectfully submitted that claims these are allowable for at least the same reasons given above in support of the independent claims upon which they depend.

IV. Rejection of Claims 19 to 48 Under 35 U.S.C. § 103(a)

Claims 19 to 48 were rejected under 35 U.S.C. § 103(a) as unpatentable over United States Patent No. 4,971,731 ("Herron et al.") in view of United States Patent No. 4,474,731 ("Brownlow et al."). Applicants respectfully submit that this rejection should be withdrawn for the following reasons.

As explained above, Herron et al. does not disclose, or even suggest, many of the features of claims 19, 33, 38, and 45, such as converting a gaseous organic bake-out product and introducing a catalytically active substance into at least one of pores of at least one of the porous setter plates and pores of at least one of the porous separating layers of the porous setter plates, as recited in the claims. Furthermore, Herron et al. does not disclose, or even suggest, many of the features of claims 33, 38 and 45, such as converting gaseous hydrocarbons. The Office Action does not even allege that Brownlow et al. discloses, and it is respectfully submitted that Brownlow et al. does not disclose, these features of the claims that are not disclosed by Herron et al.

Brownlow et al. relates to removing carbonaceous residues from

ceramic materials. According to Brownlow et al., "binders, solvents, and catalysts," are all mixed together with a glass powder, to form a ceramic *green sheet*, which then undergoes firing. Brownlow et al. states, "the nickel and/or palladium ions are preferably added to the polymer binder by solution therein prior to preparation of the ceramic powder mixtures." Col. 3, lines 24 to 34. Therefore, neither Herron et al. nor Brownlow et al. discloses, or even suggests, the above features of the present claims, such as introducing a catalytically active substance into at least one of pores of at least one of the porous setter plates and pores of at least one of the porous separating layers of the porous setter plates. Furthermore, there is no suggestion in either reference to combine the Herron et al. method with the Brownlow et al. process.

For the foregoing reasons, it is respectfully submitted that claims 19, 33, 38, and 45 are allowable over the combination of Herron et al. and Brownlow et al. As for claims 20-32, 36 and 37, which depend from claim 19 and therefore include all of the features of claim 19, as well as claims 34 and 35, which depend from claim 33 and therefore include all of the features of claim 33, claims 39 to 44, which depend from claim 38 and therefore include all of the features of claim 38, and claims 46 and 47 which depend from claim 45 and therefore include all of the features of claim 45, it is respectfully submitted that claims these are allowable for at least the same reasons given above in support of the independent claims upon which they depend.

As for the statement in the Office Action that, "it does not appear that applicant has presented separate arguments in regards to Herron et al. in view of Brownlow," it is noted that those arguments were presented in the previous Amendment in response to the Office Action of December 19, 2002, on pages 5 and 6, where arguments were presented that the Brownlow et al. reference does not cure the deficiencies of the Herron et al. reference and there is no suggestion in the prior art to combine the Brownlow et al. reference with the Herron et al. reference.

V. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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